

AMENDED CLAIMS

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(01.10.03): Claim 2 of initially submitted claims has been withdrawn; claims 1, 3, 4, 6, and 7 of initially submitted claims have been amended; no changes to the other claims. (2 pages)]

1. (amended) A magnetostrictive torque sensor shaft comprising a magnetostrictive detection portion and an engaging portion for engaging a power transmission shaft, wherein the torque sensor shaft comprises a magnetostrictive material and comprises a paramagnetic layer having a content of retained austenite of at least 50 vol% at a surface of at least the engaging portion, but excluding the magnetostrictive detection portion.
2. (deleted)
3. (amended) The magnetostrictive torque sensor shaft according to claim 1, wherein a thickness of the paramagnetic layer is at least 300 μm .
4. (amended) The magnetostrictive torque sensor shaft according to claim 1 or 3, comprising a ferromagnetic material.
5. The magnetostrictive torque sensor shaft according to claim 4, wherein the ferromagnetic material contains 3 to 30

wt% Ni.

6. (amended) A magnetostrictive torque sensor comprising the magnetostrictive torque sensor shaft according to any of the claims 1 and 3 to 5.

7. (amended) A method of manufacturing a magnetostrictive torque sensor shaft, the magnetostrictive torque sensor shaft comprising a magnetostrictive detection portion and an engaging portion for engaging a power transmission shaft, and containing 3 to 30 wt% Ni, comprising a step of carburization treatment on a surface of at least the engaging portion, but excluding the magnetostrictive detection portion of the torque sensor shaft, so as to form a paramagnetic layer containing retained austenite.

8. The method of manufacturing a magnetostrictive torque sensor shaft according to claim 7, wherein a carbon potential in the step of carburization treatment is at least 0.8 wt%.

9. The method of manufacturing a magnetostrictive torque sensor shaft according to claim 7 or 8, comprising, prior to the step of carburization treatment, a step of anti-carburization treatment on the magnetostrictive detection portion, and after the step of carburization treatment, a step of removing anti-carburization treated portion to expose a magnetostrictive material on a surface of the magnetostrictive detection portion.